AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of resource allocation comprising:

a) calculating a plurality of demand values for a plurality of components, wherein said plurality of demand values is calculated from a combination of throughput and utilization metrics, wherein said components are communicatively coupled in series, wherein processing of a request received at a first component of said plurality of components proceeds forward through said components to a last component in said series and then backward through said components to said first component, and wherein said metrics are measurable at points between said components;

b) predicting a plurality of response time metrics for said plurality of components based on said plurality of demand values;

c) modeling said plurality of components based on an objective function that responds to conditions as represented by said plurality of response time metrics when at least one of said plurality of response time metrics does not satisfy at least one of a plurality of service level objectives to determine a new effective distribution of computational resources throughout said plurality of components such that said plurality of components that are modeled satisfies said plurality of service level objectives; and

d) allocating computational resources throughout said plurality of components to reflect said new effective distribution.

2. (Original) The method as described in Claim 1, wherein said plurality of components comprise an application environment.

3. (Canceled).

4. (Previously Presented) The method as described in Claim 1, wherein said at least one of a plurality of service level objectives applies to said plurality of components on a system-wide basis.

5. (Previously Presented) The method as described in Claim 1, wherein said at least one of a plurality of service level objectives applies to said plurality of components on a subsystem basis.

6. (Previously Presented) The method as described in Claim 1, wherein said at least one of a plurality of service level objectives applies to one of said plurality of components.

7. (Original) The method as described in Claim 1, wherein a) further comprises:

receiving a plurality of metric values from said plurality of components, said plurality of metric values used to calculate said demand values.

8. (Canceled).

9. (Original) The method as described in Claim 1, wherein c) comprises:

inputting said plurality of demand values into a predictive model to determine said new effective distribution of computational resources.

10. (Original) The method as described in Claim 1, wherein d) comprises:

removing computational resources from said plurality of components.

11. (Original) The method as described in Claim 1, wherein d) comprises:

adding computational resources to said plurality of components.

12. (Currently Amended) A method of resource allocation in an application environment comprising:

a) receiving a plurality of metric values from a plurality of components of said application environment, wherein said components are communicatively coupled in series, wherein processing of a request received at a first component of said plurality of components proceeds forward through said components to a last component in said series and then backward through said components to said first component, and wherein said metric values are measurable at points between said components;

b) calculating a plurality of demand values from said plurality of metric values;

c) predicting a plurality of response time metrics for each of said plurality of components based on said plurality of demand values;

d) modeling said plurality of components based on an objective function that responds to conditions as represented by said plurality of response time metrics when at least one of said plurality of response time metrics does not satisfy at least one of a plurality of service level objectives applying to said plurality of components on a system level to determine a new effective

distribution of computational resources for said plurality of components such that response time metrics associated with said plurality of components that are modeled satisfies said plurality of service level objective, wherein said new effective distributions results in an optimum number of said plurality of components; and

e) allocating computational resources throughout said plurality of components to reflect said optimum number.

13. (Canceled).

14. (Original) The method of resource allocation as described in Claim 12, wherein d) further comprises:

determining a plurality of optimum numbers of computational resources, one for each of said plurality of components, that represents said new effective distribution of computational resources.

15. (Original) The method of resource allocation as described in Claim 12, wherein e) comprises:

removing computational resources from said plurality of components.

16. (Original) The method as described in Claim 12, wherein e) comprises:

adding computational resources to said plurality of components.

17. (Original) The method as described in Claim 12, wherein c) comprises:

predicting said plurality of response time metrics using a prediction modeling technique.

18. (Original) The method as described in Claim 17, wherein said plurality of metric values includes throughput metrics and utilization metrics.

19. (Original) The method as described in Claim 12, wherein c) comprises:

inputting said plurality of demand values into a predictive model to determine said optimum number.

20. (Currently Amended) A computer system comprising:

a processor;

a computer readable memory coupled to said processor and containing program instructions that, when executed, implement a method of resource allocation comprising:

a) calculating a plurality of demand values for a plurality of components, wherein said plurality of demand values is calculated from a combination of throughput and utilization metrics, wherein said components are communicatively coupled in series, wherein processing of a request received at a first component of said plurality of components proceeds forward through said components to a last component in said series and then backward through said components to said first component, and wherein said metrics are measurable at points between said components;

b) predicting a plurality of response time metrics for said plurality of components based on said plurality of demand values;

c) modeling said plurality of components based on an objective function that responds to conditions as represented by said plurality of response time metrics when at least one of said plurality of response time metrics does not satisfy at least one of a plurality of service level objectives to determine a new effective distribution of computational resources throughout said plurality of components such that said plurality of components that are modeled satisfies said plurality of service level objectives; and

d) allocating computational resources throughout said plurality of components to reflect said new effective distribution.

21. (Original) The computer system as described in Claim 20, wherein said plurality of components comprise an application environment.

22. (Canceled).

23. (Previously Presented) The computer system as described in Claim 20, wherein said at least one of a plurality of service level objectives applies to said plurality of components on a system-wide basis.

24. (Previously Presented) The computer system as described in Claim 20, wherein said at least one of a plurality of service level objectives applies to said plurality of components on a subsystem basis.

25. (Previously Presented) The computer system as described in Claim 20, wherein said at least one of a plurality of service level objectives applies to one of said plurality of components.

26. (Original) The computer system as described in Claim 20, wherein a) in said method of resource allocation further comprises:

receiving a plurality of metric values from said plurality of components, said plurality of metric values used to calculate said demand values.

27. (Canceled).

28. (Original) The computer system as described in Claim 20, wherein c) in said method of resource allocation comprises:

inputting said plurality of demand values into a predictive model to determine said new effective distribution of computational resources.

29. (Original) The computer system as described in Claim 20, wherein d) in said method of resource allocation comprises:

removing computational resources from said plurality of components.

30. (Original) The computer system as described in Claim 20, wherein d) in said method of resource allocation comprises:

adding computational resources to said plurality of components.

31. (Currently Amended) A communication network comprising:

a plurality of computational resources;

an application environment having a plurality of network nodes coupled together;

a plurality of components in said application environment servicing an application, each of said plurality of components including at least one computational resource from said plurality of computational resources, each of said plurality of components residing on one of said plurality of network nodes, wherein said components are communicatively coupled in series, wherein processing of a request received at a first component of said plurality of components proceeds forward through said components to a last component in said series and then backward through said components to said first component;

a plurality of metrics measured at each of said plurality of components for calculating a plurality of demand values, wherein said metrics are measurable at points between said components, wherein said plurality of demand values is calculated from a combination of throughput and utilization metrics;

a functional objective for defining an optimum number of computational resources in said application environment; and

a dynamic resource manager coupled to said application environment for modeling said plurality of components based on said functional objective that responds to conditions as represented by said plurality of demand values when at least one of said plurality of demand values does not satisfy at least one of a plurality of service level objectives to determine a new effective distribution of computational resources throughout each of said plurality of components such that said plurality of components that are modeled satisfies said plurality of service level objectives.

32. (Original) The communication network as described in Claim 31, wherein said plurality of metrics comprises throughput metrics and utilization metrics.

33. (Original) The communication network as described in Claim 31, further comprising:

a prediction model for predicting a plurality of response time metrics for said plurality of components based on said plurality of demand values; and

a mathematical model for modeling said plurality of components in response to said plurality of response time metrics for determining said new effective distribution of computational resources.

34. (Original) The communication network as described in Claim 31, further comprising:

a plurality of component managers, one for each of said plurality of components, for managing the addition and removal of computational resources in said plurality of components in response to notices from said dynamic resource manager.

35. (Original) The communication network as described in Claim 31, wherein said plurality of components comprise a local area network (LAN).